

We Claim:

1. A device for direct delivery of a non-Newtonian fluid having therapeutic properties to a target site, the device comprising:

a channel having a proximal end and a distal end and a lumen extending therethrough, the channel containing a non-Newtonian fluid having therapeutic properties, the channel configured to expose the non-Newtonian fluid to a viscosity adjuster.
2. The device of claim 1, wherein the viscosity adjuster comprises protrusions within the channel.
3. The device of claim 1, wherein the viscosity adjuster comprises a constricted flow orifice defined by the channel.
4. The device of claim 1, wherein the viscosity adjuster comprises at least one surface of the channel that is tapered from the proximal end of the channel to the distal end of the channel.
5. The device of claim 1, wherein the non-Newtonian fluid comprises a shear thinning fluid.

6. The device of claim 1, wherein the non-Newtonian fluid comprises a shear thickening fluid.
7. The device of claim 1, wherein the non-Newtonian fluid comprises a Bingham fluid.
8. A system for direct delivery of a non-Newtonian fluid having therapeutic properties into a target site, the system comprising:
 - a catheter;
 - a channel defining a reservoir, the reservoir having a proximal end and a distal end, the reservoir containing a non-Newtonian fluid having therapeutic properties, the channel located at the distal end of the catheter; and
 - a viscosity adjuster adjustably positioned within the channel and contactable with the reservoir.
9. The system of claim 8, wherein the distal end of the reservoir defines a constricted exit orifice.
10. The system of claim 8, wherein the distal end of the reservoir defines a tapered exit orifice.
11. The system of claim 8, wherein the viscosity adjuster is in the form of a plunger, the plunger having a proximal end and a distal end.

12. The system of claim 11, wherein the distal end of the plunger is wedge-shaped.
13. The system of claim 11, wherein the plunger is rotatable and the distal end of the plunger is attached to the reservoir.
14. The system of claim 8, wherein the viscosity adjuster is in the form of a screw extruder.
15. The system of claim 8, wherein the viscosity adjuster is in the form of a balloon.
16. The system of claim 8, wherein the non-Newtonian fluid is a shear thickening fluid.
17. The system of claim 8, wherein the non-Newtonian fluid is a shear thinning fluid.
18. The system of claim 8, wherein the non-Newtonian fluid is a Bingham fluid.
19. A method for directly delivering a non-Newtonian fluid having therapeutic properties to a target site, the method comprising:
 - loading the fluid in a channel, the channel having a viscosity adjuster;
 - adjusting the viscosity of the fluid by exposing the fluid to the viscosity adjuster of the channel; and

delivering the fluid to a target site.

20. The method of claim 19, wherein the non-Newtonian fluid comprises a shear thickening fluid and adjusting the viscosity increases the viscosity of the non-Newtonian fluid.

21. The method of claim 19, wherein the non-Newtonian fluid comprises a shear thinning fluid and adjusting the viscosity decreases the viscosity of the non-Newtonian viscosity fluid.